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Registry Report

Demography of Dialysis and Transplantation in Europe, 1984

Report from the European Dialysis and Transplant Association Registry*

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Abstract. The demography of renal replacement therapy up until the close of 1984 in Europe is presented, based on return of individual patient questionnaires to the EDTA Registry. These were completed by 84.7% of known centres in 33 countries. Of 187 267 individually registered patients, 102 276 were known to be alive on defined forms of renal replacement therapy on 31 December 1984. The stock of patients alive on treatment by dialysis and transplantation in Europe continued to grow and exceeded 200 per million population in 14 European countries at the end of 1984. During the same year, 21 198 new patients were accepted for treatment in Europe, and crude acceptance rates for new patients exceeded 60 per million population in four countries. Acceptance rates for elderly patients continued to increase and age specific acceptance rates for males aged 65 and over exceeded 100 per million population in 12 countries. A total of 6802 renal transplants were reported during 1984. Regrafting accounted for a higher proportion of transplants in Nordic countries and in the United Kingdom, compared with other nations. During 1984 the total number of transplants reported to the Registry passed 50 000. The distribution of primary renal disease amongst adult patients commencing treatment in 1984 is presented. Amongst elderly patients commencing treatment, a strikingly high proportion have chronic renal failure of uncertain aetiology. Finally, causes of death have been analysed amongst adult patients dying during 1984, showing myocardial ischaemia and infarction to be the leading cause of mortality.

Key words: Chronic renal failure; Haemodialysis; Continuous ambulatory peritoneal dialysis; Transplantation; Demography

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Introduction: timing of this report

This is the first report prepared by the Registry of the European Dialysis and Transplant Association—European Renal Association (EDTA Registry) for the new journal of the Association. In the past, a series of 15 Combined Reports on Regular Dialysis and Transplantation in Europe have been published in the Proceedings of the Association, the final one appearing in 1985 [1]. This Report is based entirely on analyses of individual patient questionnaires reporting treatment up till 31 December 1984. These analyses were carried out at the time of the mailing of the 1985 patient questionnaires, when the Registry's files are in their best form for the year.

Methods: the Registry data base

The Registry collects its data from two sources, a centre questionnaire and an individual patient questionnaire. New centres are notified by their directors, or by the National Keymen, who accept responsibility for maintaining a complete list of units and trying to ensure as full a return of questionnaires as possible. The contents of the centre questionnaire vary slightly from year to year, but it is designed to obtain summary information on numbers of patients treated during the year, and on centre practices. An individual patient questionnaire is completed for every subject accepted for renal replacement therapy. The information requested includes personal patient details (name, sex and date of birth), details of primary renal disease leading to end-stage renal failure, dates and types of treatment, and where appropriate, graft details, dialysis schedules, malignancies diagnosed and causes of death. The primary renal diseases and causes of death are reported by number codes given in an instruction sheet which accompanies the patient questionnaires. All patient questionnaires are printed in English, but the instruction sheets are available in five languages. Once a patient has been reported to the Registry, the information provided is preprinted on the patient questionnaire, so the responding centre need only update the record.

Demographic data on the number of patients accepted for treatment and total numbers alive on therapy are available from both the centre and individual patient questionnaires. The Registry publishes figures from both sources, and there may be differences. This is due not only to incomplete registration of individual patients, but also to double reporting through the centre questionnaires where more than one centre may claim responsibility for the care of individual patients.

The data base is maintained on the Registry's dedicated computer (VAX 11/750), and flexible analytical programmes have been developed in order to perform regular demographic analyses and particular research projects.

Results: demographic statistics

The completeness of returns for the 1984 patient questionnaire are shown in Table 1. This shows the number of known centres in each of the 33 countries reporting to the Registry and the proportion which returned 1984 patient questionnaires. Questionnaires were received from 1613 or 84.7% of centres in 33 countries. Complete returns were received from 11 countries and from over 90% of known centres in 21 countries. The proportion of responding centres was less than 75% in only five countries. The response rate was similar to that in previous years (2).

Table 2 shows the stock of patients of all ages known to be alive on 31 December 1984 according to method of treatment. Figures are given by country and, so that programmes in various countries may be compared, the total of all live patients is expressed per million population. The stock of patients alive on treatment varied greatly from

Table 1. Summary of centres known to the Registry in 1984 in individual countries. Absolute numbers, numbers per million population (PMP) and the proportion (%) returning patient questionnaires are given

Country	Population in millions	Known centres	Known centres, PMP	% Replied
Algeria	18.3	4	0.2	75.0
Austria	7.5	26	3.5	100.0
Belgium	9.8	59	6.0	91.5
Bulgaria	8.9	32	3.6	93.8
Cyprus	0.5	2	4.0	100.0
Czechoslovakia	15.3	25	1.6	100.0
Denmark	5.1	11	2.2	90.9
Egypt	41.0	31	0.8	90.3
Fed. Rep. Germany	61.7	325	5.3	87.1
Finland	4.8	26	5.4	100.0
France	53.7	212	4.0	86.3
German Dem. Rep.	16.7	54	3.2	98.2
Greece	9.7	52	5.4	69.2
Hungary	10.7	12	1.1	100.0
Iceland	0.2	1	5.0	100.0
Ireland	3.3	5	1.5	80.0
Israel	3.9	26	6.7	100.0
Italy	56.7	387	6.8	68.5
Lebanon	2.7	7	2.6	14.3
Libya	2.9	3	1.0	33.3
Luxembourg	0.4	5	12.5	100.0
Morocco	20.9	1	0.1	100.0
Netherlands	14.2	48	3.4	79.2
Norway	4.1	18	4.4	94.4
Poland	35.6	51	1.4	98.0
Portugal	9.9	39	3.9	74.4
Spain	37.1	198	5.3	93.4
Sweden	8.3	33	4.0	100.0
Switzerland	6.4	36	5.6	91.7
Tunisia	6.2	10	1.6	100.0
Turkey	44.2	16	0.4	87.5
United Kingdom	56.3	65	1.2	93.9
Yugoslavia	22.3	84	3.8	81.0
Total Registry	599.3	1904	3.3	84.7

Table 2. Stock of patients alive on 31 December 1984 in individual countries. Numbers on different forms of renal replacement therapy given together with total per million population

Country	Hosp. HD	Home HD	IPD	CAPD	With funct. graft	Total	Per million pop.
Algeria	81	1	0	14	11	107	5.8
Austria	1172	54	1	18	406	1651	220.1
Belgium	2003	107	6	145	1120	3381	345.0
Bulgaria	720	23	0	1	5	749	84.2
Cyprus	95	0	0	0	34	129	258.0
Czechoslovakia	823	2	9	5	254	1093	71.4
Denmark	380	44	34	164	430	1052	206.3
Egypt	754	2	31	10	74	871	21.2
Fed. Rep. Germany	14 755	1775	186	326	3057	20 099	325.8
Finland	245	3	10	135	583	976	203.3
France	8892	1807	136	813	3868	15 516	288.9
German Dem. Rep.	1426	0	4	6	503	1939	116.1
Greece	1184	1	4	168	244	1601	165.1
Hungary	355	0	25	8	122	510	47.7
Iceland	21	0	0	0	8	29	145.0
Ireland	155	26	7	49	249	486	147.3
Israel	823	46	48	132	276	1325	339.7
Italy	11 347	820	139	1057	1585	14 948	263.6
Lebanon	11	0	0	0	1	12	4.4
Libya	50	0	0	0	9	59	20.3
Luxembourg	81	4	0	0	7	92	230.0
Morocco	48	0	0	0	9	57	2.7
Netherlands	1548	126	1	265	499	2439	171.8
Norway	224	4	3	20	639	890	217.1
Poland	855	0	43	11	283	1192	33.5
Portugal	1560	0	2	8	104	1674	169.1
Spain	7878	316	91	596	1812	10 693	288.2
Sweden	754	99	27	185	1220	2285	275.3
Switzerland	826	164	4	200	604	1798	280.9
Tunisia	225	0	1	17	7	250	40.3
Turkey	415	1	10	18	128	572	12.9
United Kingdom	1744	2006	68	1859	5299	10 976	195.0
Yugoslavia	2572	16	8	24	205	2825	126.7

country to country, but exceeded 250 per million population in nine nations. The figure was highest in Belgium, where there were 345 patients alive on renal replacement therapy per million population at the end of 1984. The table does not include patients previously reported to the Registry but not updated for 1984.

The numbers of new male and female patients accepted for first treatment during 1984 are shown in Table 3, which gives the crude acceptance rate per million population by country. Over 60 new patients per million population were accepted onto treatment during 1984 in Austria, Belgium, the Federal Republic of Germany and Israel. Between 50 and 60 new patients per million population were taken on in Iceland, Norway, Spain and Sweden. The total column of the table includes patients whose sex was not recorded. Acceptance rates for new patients in 1984 are shown separately for males and females in Tables 4 and 5, broken down into four age groups. The take-on rates are expressed as age and sex specific; in other words, calculated in relation to the total number of people in the general population of the corresponding age and sex group. Data on population were obtained from the WHO Statistics Annual using the most up to date information available for each country. In countries with the highest overall acceptance rates such as Belgium and the Federal Republic of Germany, take-on rates for males increased with age so that the highest acceptance rates were in the 65 and over age group. In these countries, the same pattern was not observed among females. Acceptance rates for women aged 65 and over are similar to those for women aged between 35 and 64 at first treatment. In countries such as the United Kingdom and the German Democratic Republic with an overall acceptance rate of between 30 and 35 per million population, age specific acceptance rates fell in the 65 and over age group, whether patients were male or female.

Transplantation activity during 1984 is summarised for individual countries in Table 6. This shows grafts according to source, live donor or cadaver, and gives the numbers which were first, second, third or fourth grafts. The table gives the total number of grafts done in each country during 1984 and this will include transplants whose source was unknown. The grafts are given according to the country

Table 3. Numbers of new patients accepted onto renal replacement therapy in 1984 by country. Males and females shown separately. The total includes patients whose sex was not registered. Crude acceptance rate per million population (PMP) is also given

Country	New patients 1984			Acceptance rate PMP
	Male	Female	Total	
Algeria	24	27	51	2.8
Austria	241	215	464	61.9
Belgium	354	322	683	69.7
Bulgaria	112	62	175	19.7
Cyprus	10	9	20	40.0
Czechoslovakia	193	123	316	20.7
Denmark	113	90	205	40.2
Egypt	278	124	411	10.0
Fed. Rep. Germany	2273	1833	4142	67.1
Finland	100	64	167	34.8
France	1433	999	2644	49.2
German Dem. Rep.	304	237	544	32.6
Greece	273	176	451	46.5
Hungary	75	76	152	14.2
Iceland	4	6	10	50.0
Ireland	59	33	92	27.9
Israel	182	102	290	74.4
Italy	1573	1125	2738	48.3
Lebanon	0	0	0	0
Libya	10	8	18	6.2
Luxembourg	9	6	15	37.5
Morocco	0	0	0	0
Netherlands	271	214	487	34.3
Norway	128	90	218	53.2
Poland	236	159	395	11.1
Portugal	265	157	426	43.0
Spain	1289	872	2179	58.7
Sweden	301	193	497	59.9
Switzerland	179	117	300	46.9
Tunisia	47	39	87	14.0
Turkey	190	110	303	6.9
United Kingdom	1149	753	1910	33.9
Yugoslavia	446	354	808	36.2

Table 4. Age specific acceptance rate for male patients onto renal replacement therapy in 1984 shown by individual country

Country	Age specific acceptance, 1984, males per million population			
	0–14	15–34	35–64	65 and over
Algeria	1.0	6.0	8.3	4.0
Austria	3.9	36.2	128.5	97.3
Belgium	13.7	38.8	114.7	156.6
Bulgaria	2.0	16.1	53.1	4.2
Cyprus	0	8.8	70.3	104.2
Czechoslovakia	1.6	19.8	57.5	6.6
Denmark	7.5	34.0	68.6	67.1
Egypt	0.1	11.1	35.7	34.7
Fed. Rep. Germany	4.0	28.3	132.3	155.7
Finland	8.1	21.7	88.5	43.5
France	7.5	30.0	89.9	121.8
German Dem. Rep.	4.7	34.6	74.3	8.6
Greece	3.6	29.3	99.1	106.8
Hungary	3.3	15.2	23.5	7.1
Iceland	0	23.8	90.9	0
Ireland	7.7	31.0	78.9	12.4
Israel	5.6	53.4	210.8	284.8
Italy	4.0	27.3	93.9	133.1
Lebanon	0	0	0	0
Libya	0	25.8	14.9	0
Luxembourg	0	17.2	75.8	150.0
Morocco	0	0	0	0
Netherlands	5.7	19.8	68.1	81.1
Norway	6.6	35.9	97.8	139.0
Poland	2.0	17.7	21.9	0.7
Portugal	1.4	35.4	106.7	148.1
Spain	7.2	49.8	129.8	120.2
Sweden	3.7	43.0	104.9	150.1
Switzerland	3.2	22.3	105.9	99.2
Tunisia	0	18.1	50.0	36.0
Turkey	0.1	13.9	19.4	8.3
United Kingdom	6.7	30.1	73.7	51.8
Yugoslavia	3.2	27.9	85.5	30.6

where the patient is registered and this does not necessarily correspond to place of grafting. During 1984, no fifth or numerically higher grafts were reported.

The instruction sheet which accompanies the patient questionnaire affords 55 choices of primary renal disease. Some of these have been amalgamated in Table 7, which shows the proportional distribution of primary renal diseases among patients commencing therapy in 1984 according to age at start of treatment. There were 15 783 patients aged between 15 and 64 at start of therapy in 1984 for whom primary renal disease was provided and an additional 4011 aged 65 and over. In the 15 to 64-year old group glomerulonephritis accounted for 28.3% of primary renal diseases and pyelonephritis/interstitial nephritis for a further 17.1%. Amongst patients aged 65 and over, a striking observation is the proportion (21.1%) of patients with primary renal disease given as chronic renal failure, aetiology uncertain.

In Table 8 the proportional distribution of causes of death amongst patients dying in 1984 is given according to age at death. Information was available on a total of 8612 patients who died aged 15 and over during 1984. The most common single cause of death in the two age groups shown is myocardial ischaemia and infarction, followed by cerebrovascular accident.

Discussion

Completeness of returns to the EDTA Registry

The data given in this paper are entirely based on analyses of the file of individually registered patients. The EDTA Registry now holds 187 267 such records. Of the 1904

Table 5. Age specific acceptance rate for female patients onto renal replacement therapy in 1984 shown by individual country

Country	Age specific acceptance, 1984, females per million population			
	0–14	15–34	35–64	65 and over
Algeria	1.4	4.0	12.6	3.6
Austria	5.4	27.6	98.2	62.9
Belgium	12.3	27.4	106.2	102.6
Bulgaria	1.0	10.3	28.7	0
Cyprus	0	9.3	66.4	59.3
Czechoslovakia	0.6	13.3	35.6	0
Denmark	5.9	14.5	72.2	25.5
Egypt	0.5	6.1	14.6	11.9
Fed. Rep. Germany	4.4	22.5	88.5	92.7
Finland	2.1	14.0	57.0	10.9
France	8.0	17.3	59.3	62.5
German Dem. Rep.	6.7	24.4	60.0	2.3
Greece	0.9	22.0	55.5	61.7
Hungary	0.9	14.5	24.8	3.6
Iceland	33.3	25.6	93.8	76.9
Ireland	4.0	22.2	41.2	5.1
Israel	11.2	25.1	102.0	158.2
Italy	4.1	14.9	62.4	77.7
Lebanon	0	0	0	0
Libya	0	19.8	16.4	0
Luxembourg	0	17.9	44.8	66.7
Morocco	0	0	0	0
Netherlands	6.6	12.7	48.6	62.3
Norway	4.6	24.8	80.0	53.8
Poland	2.8	11.7	12.7	0.9
Portugal	5.2	23.1	47.6	54.3
Spain	6.7	27.9	88.2	54.5
Sweden	6.4	19.0	79.2	61.9
Switzerland	6.7	12.3	67.6	41.7
Tunisia	0.8	15.5	37.0	10.9
Turkey	0.3	6.9	13.2	3.1
United Kingdom	4.0	12.4	51.3	21.7
Yugoslavia	1.1	18.7	66.6	20.6

known units in 33 countries, 84% returned patient questionnaires for 1984. In some countries the returns were complete and in most they were in excess of 80%. Despite the growing number of units providing dialysis and transplant facilities in Europe, compliance in returning EDTA forms has been maintained.

Trends in renal replacement therapy

At the close of 1984 there were 102 276 patients individually registered alive on defined methods of renal replacement therapy in Europe. This represents an increase of 13.7% compared with 31 December 1983 [1]. Patients alive on hospital haemodialysis had increased by 11.8%, but those treated on home haemodialysis had fallen by 5.2%. Home haemodialysis appears to have been supplanted by continuous ambulatory peritoneal dialysis (CAPD). Numbers on this form of therapy rose to 6254 in 1984, representing an increase of 23.0%. The stock of patients alive on renal replacement therapy at the close of 1984 exceeded 200 per million population in 14 countries. This treatment figure was surpassed by Austria, Denmark, Finland and Norway for the first time during 1984 (Table 2).

Acceptance rates for new patients varied greatly from country to country during 1984 (Table 3). Acceptance rates were in excess of 60 per million population in four countries. In 16 countries acceptance rates remained below 35 per million population. Overall, 21 198 new patients were accepted for renal replacement therapy in Europe during 1984, with a preponderance of males to females in the ratio 1.4:1.

The variation in acceptance policy between countries is even more striking if age and sex specific acceptance rates are compared (Tables 4, 5). In countries where facilities for treatment of end-stage renal failure are restricted, it is the oldest patients, in other words those aged 65 and over, who are excluded from treatment. Even in nations with high overall acceptance rates, there is still a discrepancy between acceptance rates for elderly males and elderly females. Take-on rate for males aged 65 and over was 150 per million population or more in Belgium, the Federal Republic of Germany, Israel, Luxembourg and Sweden. By comparison the age specific acceptance rate exceeded 150 per million population for females in only one country.

The number of individually recorded renal transplants performed in 1984 was 6802 (Table 6). Proportions of live donors and of regrafting varied between countries. There were high proportions of live donors in Egypt, Greece, Ireland, Israel, Norway and Sweden, but low proportions in Denmark, Switzerland and Eastern European countries. Regrafting accounted for more of the grafts in Nordic countries and in the United Kingdom than in other nations where fewer patients were transplanted. Patient questionnaires recorded 50 655 renal transplants performed in Europe by 31 December 1984.

Analysis of primary renal diseases leading to end-stage renal failure amongst adult patients commencing treatment in 1984 showed that glomerulonephritis is still the most common diagnosis. Amongst elderly patients, the aetiology of chronic renal failure is unknown in one-fifth of cases (Table 7). The increase in acceptance rates for elderly patients has meant that diabetes, vascular and hypertensive disease account for a greater proportion of primary renal diseases diagnosed as leading to end-stage renal failure. Cardiovascular disease remains the leading cause of death amongst adult patients on renal replacement therapy (Table 8). Among patients aged 15–64 at time of death, cardiac causes accounted for 40% of mortality. In the 65 and over age group the figure was similar, at 37.6%.

Table 6. Grafts reported to the Registry in 1984 by individual country. Grafts are shown according to source and number in overall graft sequence

Country	Live donor					Cadaver					All grafts
	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	
Algeria	0	0	0	0	0	3	0	0	0	3	3
Austria	3	0	0	0	3	134	19	4	1	158	165
Belgium	36	0	0	0	36	165	27	1	0	193	233
Bulgaria	0	0	0	0	0	0	0	0	0	0	0
Cyprus	7	0	0	0	7	5	0	0	0	5	12
Czechoslovakia	1	0	0	0	1	101	16	0	0	117	122
Denmark	6	1	0	0	7	90	26	8	1	125	139
Egypt	40	1	0	0	41	0	0	0	0	0	43
Fed. Rep. Germany	34	2	0	0	36	777	117	11	1	906	1010
Finland	9	1	0	0	10	78	6	0	0	84	99
France	30	4	1	0	35	772	65	1	0	838	981
German Dem. Rep.	4	1	0	0	5	145	8	0	0	153	174
Greece	15	0	0	0	15	15	1	0	0	16	36
Hungary	1	0	0	0	1	44	8	0	0	52	59
Iceland	0	0	0	0	0	0	0	0	0	0	0
Ireland	16	2	1	0	19	50	8	0	0	58	78
Israel	17	0	0	0	17	57	5	0	0	62	88
Italy	25	0	0	0	25	338	32	2	0	372	413
Lebanon	0	0	0	0	0	0	0	0	0	0	0
Libya	4	0	0	0	4	0	0	0	0	0	4
Luxembourg	1	0	0	0	1	2	0	0	0	2	3
Morocco	0	0	0	0	0	6	0	0	0	6	6
Netherlands	3	2	0	0	5	90	12	1	0	103	121
Norway	51	4	1	0	56	74	13	2	1	90	154
Poland	1	0	0	0	1	117	7	0	0	124	128
Portugal	1	0	0	0	1	49	2	0	0	51	56
Spain	50	2	0	0	52	627	32	3	0	662	771
Sweden	60	2	0	0	62	179	35	7	0	221	294
Switzerland	2	0	0	0	2	103	12	2	0	117	161
Tunisia	1	0	0	0	1	2	0	0	0	2	3
Turkey	13	0	0	0	13	3	0	0	0	3	17
United Kingdom	89	10	1	0	100	959	205	40	4	1208	1369
Yugoslavia	35	1	0	0	36	16	3	0	0	19	60

Table 7. Proportional distribution (%) of causes of end-stage renal failure in patients starting renal replacement therapy in 1984, according to age at start of therapy

Causes of end-stage renal failure	Age at start of renal replacement therapy, 1984 (%)	
	15–64	65 and over
Chronic renal failure, aetiology uncertain	12.8	21.1
Glomerulonephritis—histologically *not* examined	17.1	10.6
—histologically examined	11.2	4.2
Pyelonephritis/interstitial nephritis—cause not specified	9.1	12.6
—associated with neurogenic bladder	0.5	<0.1
—due to congenital obstructive uropathy with or without vesico-ureteric reflux	1.2	0.4
—due to acquired obstructive uropathy	1.4	3.5
—due to vesico-ureteric reflux without obstruction	1.6	0.3
—due to urolithiasis	2.3	3.6
—due to other cause	1.0	1.1
Nephropathy—caused by drugs or nephrotoxic agents—cause not specified	0.5	0.7
—due to analgesic drugs	2.8	3.4

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Table 7 *(continued)*

Causes of end-stage renal failure	Age at start of renal replacement therapy, 1984	
	15–64 (%)	65 and over (%)
Cystic kidney disease—type unspecified	1.1	0.9
Polycystic kidneys—adult type	7.9	4.7
—infantile and juvenile types	0.2	0.1
Medullary cystic disease, including nephronophthisis	0.2	<0.1
Hereditary/familial nephropathy	1.5	0.2
Hereditary nephritis with nerve deafness (Alport's syndrome)	0.7	<0.1
Cystinosis	<0.1	0
Oxalosis	0.1	<0.1
Renal vascular disease—type unspecified	1.8	4.2
—due to malignant hypertension (*no* primary renal disease)	2.1	1.0
—due to hypertension (*no* primary renal disease)	4.0	7.5
—due to polyarteritis	0.2	0.6
Wegener's granulomatosis	0.2	0.1
Diabetes—insulin dependent (type I)	7.8	5.6
—non-insulin dependent (type II)	2.4	4.7
Myelomatosis	0.6	1.7
Amyloid	1.8	1.8
Lupus erythematosus	1.0	0.1
Henoch-Schönlein purpura	0.3	<0.1
Goodpasture's syndrome	0.3	0.1
Scleroderma	0.1	0.2
Haemolytic uraemic syndrome (Moschcowitz syndrome)	0.2	<0.1
Multi-system disease—other	0.3	0.2
Cortical or tubular necrosis	0.3	0.5
Tuberculosis	0.8	1.0
Gout	0.6	0.9
Nephrocalcinosis and hypercalcaemic nephropathy	0.2	0.1
Balkan nephropathy	0.7	0.2
Kidney tumour	0.4	0.5
Traumatic or surgical loss of kidney	0.2	0.1
Other identified renal disorders	0.6	0.8
Total patients with diagnosis available	15 783	4011

Table 8. Proportional distribution (%) of causes of death in patients dying in 1984, according to age at death

Causes of death on renal replacement therapy		Age at death 1984	
		15–64 (%)	65 and over (%)
Cause of death uncertain/not determined/unknown		6.0	7.1
Cardiac:	Myocardial ischaemia and infarction	13.3	13.6
	Hyperkalaemia	2.7	1.3
	Haemorrhagic pericarditis	1.1	0.3
	Other causes of cardiac failure	7.2	9.4
	Cardiac arrest, cause unknown	9.9	10.1
	Hypertensive cardiac failure	3.5	1.9
	Hypokalaemia	0.3	<0.1
	Fluid overload	2.2	1.0

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Table 8 *(continued)*

Causes of death on renal replacement therapy		Age at death 1984	
		15–64 (%)	65 and over (%)
Vascular:	Pulmonary embolus	1.2	1.0
	Cerebrovascular accident	10.4	11.7
	Haemorrhage from graft site	0.2	<0.1
	Haemorrhage from vascular access or dialysis circuit	0.2	0.3
	Haemorrhage from ruptured vascular aneurysm	0.8	0.6
	Haemorrhage from surgery	0.3	<0.1
	Other haemorrhage	0.7	0.3
Infection:	Pulmonary infection (bacterial)	3.0	3.3
	Pulmonary infection (viral)	0.5	0.4
	Pulmonary infection (fungal)	0.3	0.2
	Infections elsewhere	0.8	0.4
	Septicaemia	8.1	4.5
	Tuberculosis	0.6	0.4
	Generalised viral infection	0.4	<0.1
	Peritonitis	1.7	1.8
Liver Disease:	Viral hepatitis	1.2	0.5
	Drug toxicity	0.1	0.1
	Cirrhosis—not viral	0.8	0.8
	Cystic liver disease	0.1	<0.1
	Liver failure—cause unknown	0.5	0.1
Gastro-intestinal:	Gastro-intestinal haemorrhage	2.1	1.7
	Mesenteric infarction	0.7	0.8
	Pancreatitis	0.9	0.2
	Sclerosing (or adhesive) peritoneal disease	0.4	0.3
	Perforation of peptic ulcer	0.2	0.3
	Perforation of colon	0.5	0.6
Social:	Patient refused further treatment	0.7	1.8
	Suicide	0.7	0.4
	Therapy ceased for any other reason	0.7	1.5
Miscellaneous:	Uraemia caused by graft failure	0.3	0
	Bone marrow depression	0.1	0.3
	Cachexia	2.9	9.3
	Malignant disease	5.4	6.2
	Dementia	1.1	1.7
Accident:	Accident related to treatment	0.4	0.2
	Accident unrelated to treatment	0.8	0.5
Other identified cause of death		4.0	3.1
Total patients with known cause of death		5917	2695

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